
SAM

PDR

Summary

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Laboratory for Terrestrial Physics
Calibration Facility

23 November 1999

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SAM PDR Summary – 23/11/99

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PDR Summary:

1. There are no apparent show-stoppers in the design as described in the PDR document.
2. The approach is valid for far-field aperture maps.
3. Near-field aperture maps can not be made using FRMS as the detector head. Two methods were suggested for obtaining near-field maps:
 - i) A bare detector
 - ii) Tilt & rotate the FRMS head and integrate the data
4. Highly repeatable five-axis positioning of SAM relative to the source aperture is critical to generation of reliable aperture maps.
5. SAM is for vertical apertures only. A horizontal mapping capability is necessary. Three possibilities for horizontal mapping were suggested:
 - i) Adapt SAM to horizontal mapping
 - ii) Build a horizontal version of SAM
 - iii) Mount a detector head on a robotic arm with at least five degrees of freedom.
6. SAM is not easily transportable, therefore is most useful for laboratory use. A field-deployable unit will eventually be required.

Discussion

1. None.
2. None.
3. Near-field maps will provide useful information, but may be unnecessary given the instruments used by CF customers. Method (i) may result in detector saturation at high source output levels, and spectral bandpass selection may be difficult. Method (ii) results in a lengthy mapping time.
4. This is primarily a mechanical alignment problem. Simple alignment jigs can easily allow <0.1% repeatability. More complex jigs may allow <0.01% repeatability.
5. Flexible aperture mapping capability is necessary. Method (iii) is preferred, but may be cost-prohibitive. Methods (i) and (ii) are mechanically difficult to implement, particularly in a field-deployable unit.
6. The proposed system should be built, if only for laboratory use. A unit more suitable for field use will be built at some point in the future.

Action Items

- Investigate and choose alignment jigs.